Republic of the Philippines
MARINDUQUE STATE COLLEGE
COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Capstone Project Title Approval Form

Group Code: [SD-3E1]

Proponents

Project Leader: June Charles Mariquit

Group Members:

Daniela Marquez

Rubylyn Rey

Jayron Sadian

Proposed Capstone Project Title

CyberSecure Portal: A Digital Assurance and Resilience Platform Empowering the College of Information and Computing Sciences

Name and Contact No. or Target Organization

College of Information and Computing Sciences(CICS)

Platform

Web-base//Mobile Aplication/SQL database

Background of the Organization/Firm/Target Pilot Area

Background of the Organization/Firm:

The College of Information and Computing Sciences (CICS) at Marinduque State College (MSC) is renowned for its dedication to nurturing expertise in information technology and computing. With a strong emphasis on practical, real-world applications, CICS offers students hands-on experiences and valuable industry partnerships, equipping them for success in today's dynamic digital landscape.

Driven by a firm commitment to excellence and innovation, CICS is embracing digital transformation to elevate its educational programs. The introduction of the CyberSecure Portal exemplifies this commitment, ensuring a secure and advanced learning environment for both students and faculty members alike.

CICS remains at the forefront of technological innovation, shaping the future of College of information and computing sciences within MSC and beyond.

Target Pilot Area:

For the initial implementation and testing phase of the CyberSecure Portal project, the institution plans to focus on deploying the system within a specific pilot area with heightened security measures. This pilot area encompasses a targeted group of administrators, teachers, and students who will actively participate in testing the functionality and usability of the portal while prioritizing the security of their data.

School Goals: The College of Pfiformation and Computing Sciences aims to produce competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era of the province and the country as a whole.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Management
System
ISO 9001:2015
www.tuv.com
ID 9108634250

Problem Statement

Problems	Causes	Solutions (As a Feature of your System
Identity Theft and Impersonation	Insider threats from malicious actors within the institution / Social Engineering	To prevent Identity Theft and Impersonation, restrict portal access to institutional email accounts only. This ensures that only verified users with institutional affiliations can log in, enhancing security significantly.
Insider threats from malicious actors within the institution	Sabotage / Personal Vendettas / Identity Fraud	To enhance security, institutions can restrict portal access to institutional email accounts only and implement identity verification protocols like 2FA. This ensures that only verified users can access sensitive data, reducing the risk of identity theft and impersonation.
Use of non-institutional within the Organisation	• Lack of Awareness • Resistance to Change • Lack of self decipline	Restriction of access to the CyberSecure Portal exclusively to institutional email accounts, ensuring that only verified users with institutional affiliations can access sensitive data.

Objectives

Secure Authentication Mechanisms: Implement stringent password policies and a lockout mechanism on the login page to thwart brute force attacks.

Password Recovery with 2FA: Enable password resets through two-factor authentication (2FA), utilizing security questions and an OTP sent to users' institutional email.

Role-Based Access Control (RBAC): Develop distinct panels for administrators, educators, and learners, ensuring access control based on roles to safeguard sensitive data.

School Goals: The College of Ihformation and Computing Sciences aims to produce competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era of the province and the country as a whole.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Web Application Firewall (WAF): Deploy a WAF to fortify defenses against common web attacks like SQL injection and cross-site scripting, bolstering overall portal security.

Admin Monitoring and Attack Detection: Provide administrators with a monitoring dashboard to surveil portal activities and promptly identify potential threats flagged by the WAF, enabling proactive mitigation.

Identity Theft Prevention:
- Mandate institutional email addresses for login to mitigate identity theft risks.
- Ensure login access requires verification via institutional email, minimizing identity theft vulnerabilities.

Session Management: Implement secure session management techniques to prevent session hijacking and ensure timely session expiration after periods of inactivity.

Device Logging: Log device details upon user sign-in, including device type, OS, browser version, and IP address, for audit and security purposes.

Password Expiration Policy: Enforce a password expiration policy, prompting users to change passwords regularly every 90 days, enhancing security by refreshing credentials and thwarting potential breaches.

Specific Objectives

Authentication Mechanism:
- Develop a robust authentication mechanism using SQL-based authentication to ensure secure access to the school portal.
- Implement multi-factor authentication (MFA) and encryption protocols to enhance security and protect user credentials.

Access Control Management:
- Design and implement role-based access control (RBAC) mechanisms to manage user access levels and permissions.
- Define distinct roles for administrators, teachers, and students, each with specific privileges and restrictions based on their responsibilities.

School Goals: The College of Information and Computing Sciences aims to produce competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era of the province and the country as a whole.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

User Interface Enhancement:
- Design an intuitive and user-friendly interface for the school portal, facilitating seamless navigation and interaction for all users.
- Incorporate responsive design principles to optimize the portal's usability across various devices and screen sizes.

Communication Features Integration:
- Integrate communication tools such as messaging systems and announcement boards to facilitate effective communication between users.
- Implement encryption protocols and security measures to protect sensitive information exchanged within the portal.

Data Security and Privacy Measures:
- Implement data encryption techniques to ensure the confidentiality and integrity of user data stored within the portal's SQL database.
- Develop mechanisms to enforce compliance with data privacy regulations such as GDPR or FERPA to protect user privacy rights.

Comprehensive Testing and Validation:
- Conduct rigorous testing procedures to identify and address security vulnerabilities, usability issues, and system errors.
- Gather feedback from stakeholders to evaluate the effectiveness and usability of the authentication and access control features.

Specific Functions and Features

Authentication and Access Control:
- User registration and account creation with SQL-based authentication.
- Multi-factor authentication (MFA) for enhanced security.
- Role-based access control (RBAC) to manage user permissions and access levels.
- Password management features, including password reset and recovery, with enforced password complexity.

Republic of the Philippines
MARINDUQUE STATE COLLEGE
COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

User Management:

- Secure storage of user credentials with hashing and salting techniques to protect against unauthorized access.
- Strict account activation and deactivation procedures by administrators to prevent unauthorized account usage.
- User grouping and organization with RBAC implementation for streamlined management and access control.
- User profile management for administrators, teachers, and students, ensuring secure storage of personal information and contact details.

Dashboard and Navigation:

- Personalized dashboards for administrators, teachers, and students, ensuring secure access to relevant information.
- Intuitive navigation menu with secure session management to prevent unauthorized access.
- Customizable widgets and modules with secure transmission protocols to safeguard data during communication.

Communication and Collaboration:

- Encrypted messaging system with end-to-end encryption to ensure confidentiality of communications.
- Announcement board with CAPTCHA implementation to prevent spam and unauthorized postings.
- Discussion forums and shared document repositories with access controls to protect sensitive educational resources.

Academic Management:

- Encrypted storage of academic records and grades to protect student privacy.
- Assignment submission and grading system with secure data transmission protocols.
- Calendar integration with secure session management to prevent unauthorized access to academic events and deadlines.

Administrative Tools:

- Administrative dashboard with secure login monitoring to detect suspicious activity.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

- User management tools with audit logs for tracking user activity and system performance.
- Reporting and analytics features with secure transmission protocols to safeguard data during communication.

Security and Privacy Measures:
- Data encryption techniques, such as AES encryption, to protect sensitive information stored in the database.
- Secure transmission protocols (HTTPS) to safeguard data during communication.
- Compliance with data privacy regulations such as GDPR or FERPA to protect user privacy rights.
- Regular security audits and updates to mitigate potential vulnerabilities.
- Implementation of web application firewall (WAF) to protect against common web-based attacks, such as SQL injection, XSS, and CSRF.

Accessibility and Usability:
- Responsive design for optimal viewing experience across devices and screen sizes.
- Accessibility features to ensure inclusivity for users with disabilities.
- User-friendly interface with clear navigation and intuitive controls.
- Support for multiple languages to accommodate diverse user populations.

Significance and Possible Users

Significance:

The CyberSecure Portal system offers paramount importance for educational institutions, administrators, teachers, and students with a strong emphasis on security:

- Advanced Security Measures: By implementing SQL-based authentication and access control mechanisms, the system ensures fortified security protocols, safeguarding sensitive student and institutional data from unauthorized access and potential cyber threats.
- Robust Communication Security: The portal provides not only effective communication and collaboration tools but also ensures the security of communication channels. Features such as encrypted messaging systems and secure announcement boards guarantee the confidentiality and integrity of

School Goals: The College of Phformation and Computing Sciences aims to produce
competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era
of the province and the country as a whole.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

communications between administrators, teachers, and students.

- Data Privacy Assurance: With stringent adherence to data privacy regulations such as GDPR or FERPA, the system prioritizes the protection of student privacy rights. This commitment to data privacy instills trust among users and ensures compliance with legal requirements, mitigating the risk of data breaches and privacy violations.

- Enhanced Access Control: Role-based access control (RBAC) mechanisms within the portal enable granular control over user permissions and access levels. This ensures that sensitive resources and information are only accessible to authorized individuals, minimizing the risk of unauthorized data access or manipulation.

- Continuous Security Monitoring: Regular security audits and updates are conducted to identify and address potential vulnerabilities promptly. This proactive approach to security maintenance ensures that the system remains resilient against evolving cyber threats, providing users with peace of mind regarding the safety and integrity of their data.

Possible Users:

The CyberSecure Portal system caters to various users within the educational institution:

Administrators:
- School administrators responsible for managing system settings, user accounts, and overall portal configurations.
- Department heads or academic administrators overseeing specific academic departments or programs.

Teachers:
- Educators responsible for teaching courses, managing grades, and interacting with students within the portal.
- Subject matter experts contributing educational resources and participating in collaborative activities.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Students:

- Enrolled students accessing course materials, submitting assignments, and communicating with teachers and peers through the portal.
- Student leaders or representatives involved in extracurricular activities or student organizations.

Level of Feasibility

Technical Feasibility:

- **Strong Cybersecurity Defenses**: The CyberSecure Portal uses advanced tools like web application firewalls (WAFs) to protect against cyber attacks and keep everything safe.
- **Complete Protection**: WAFs are like security guards for the portal, watching for common online threats and stopping them before they cause any harm. They're always on duty, making sure no one can sneak in and mess with important stuff.
- **Better Security:** By having WAFs, the CyberSecure Portal stays tough against new kinds of online dangers. This means the people who use it – teachers, students, and administrators – can feel safe when they're working and communicating.
- **Stopping Problems Early**: WAFs are really good at spotting trouble and dealing with it fast. They find bad stuff happening and stop it before it gets worse. This helps keep all the school's information safe and stops any problems from causing too much trouble.
- **Keeping Data Safe:** It's important to regularly check and update the database where all the school's information is kept. When the portal goes online, it needs to move data carefully to keep it safe during the move.
- **Easy to Use**: WAFs fit smoothly into the CyberSecure Portal, working well with its web-based tools. This means the portal stays safe without being hard for people to use.
- **Secure Login with Cookies**: When users log in, the CyberSecure Portal can use cookies to remember their login data. This means they won't have to type in their information every time they visit the portal, making it more convenient while still keeping their data safe.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES
Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:
Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

Operational Feasibility:

- **User-Friendly Interface:** The CyberSecure Portal offers an intuitive and easy-to-use interface accessible via web and mobile platforms. This allows administrators, teachers, and students within educational institutions to quickly set up accounts and efficiently monitor security-related activities.

- **Seamless Integration:** The portal seamlessly integrates with existing systems, ensuring smooth compatibility with the institution's infrastructure. This integration enhances the user experience by reducing disruptions and simplifying the implementation process.

- **Instant Notification System:** With its instant notification system, the CyberSecure Portal promptly alerts users to security incidents. This enables swift responses to potential cyber threats, thereby enhancing operational efficiency and minimizing the impact of security breaches.

- **Streamlined Processes:** Designed with streamlined processes in mind, the CyberSecure Portal optimizes security procedures and protocols. This simplification reduces complexity and enhances overall cybersecurity within educational settings, making it easier for users to navigate and understand security measures.

- **Accessibility Across Platforms:** The CyberSecure Portal ensures consistent access to security features and resources across both web and mobile platforms. This accessibility promotes secure collaboration and communication among stakeholders, regardless of their preferred device or location.

- **Enhanced Security Measures**: Implementing robust security measures, such as encryption, access controls, and intrusion detection systems, the CyberSecure Portal effectively manages cybersecurity risks within educational environments. These measures safeguard sensitive data and mitigate the potential impact of cyber threats, bolstering digital security across the institution.

School Goals: The College of Ihformation and Computing Sciences aims to produce
competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era
of the province and the country as a whole.

Republic of the Philippines

MARINDUQUE STATE COLLEGE

COLLEGE OF INFORMATION AND COMPUTING SCIENCES

Panfilo M. Manguera Sr. Rd., Tanza, Boac, Marinduque
SICS Tel. No.: (042) 704-0193   SICS E-mail Address: sics.msc@gmail.com
Website: www.mscmarinduque.edu.ph

Courses Offered:

Boac Campus:
BS Information Technology
BS Information Systems
(AACCUP, Inc. Reaccredited Level 3)
Santa Cruz Campus:
BS Information Systems
(AACCUP, Inc. Reaccredited Level 2)

For Review Committee Only

Comments:

Status:

☐ For Revision
☐ Approved
☐ Disapproved

_____
Signature Over Printed Name

Note: You may attach the results of your survey and feasibility analysis, if needed.

School Goals: The College of Phiformation and Computing Sciences aims to produce
competitive IT professionals and IT enabled individuals who will encourage real innovation for the advancement in the digital era
of the province and the country as a whole.